bristles are widely used in paint brushes not only because they are stiff but also because their surface structure exhibits a very fine cuticular pattern (Fig. 14b) which is capable of retaining paint to the maximum extent. Some hairs exhibit a regular pattern in the structure of the medulla with a certain amount of symmetry being noticeable. Examples are porcupine quill (Fig. 5a), Sheep (Fig. 8a), Blackbuck (Fig. 11a) and Sambar (Fig. 12a). Sheep hair has little cortex. The large amount of air in the medulla would be an effective insulator against cold. Blackbuck hair (Fig. 11a) shows the presence of two types of hair; a circular one and a peanut shaped one which looks as if it is the fusion of two hairs. Nilgai (Fig. 10) has thicker hairs on the nape (a, b) and thinner ones on the body (c). The SEM does not show the differences in colour. Thus hair from nilgai male and female look the same and the various coloured hairs on the chital also look the same (Fig. 13). A detailed SEM study has been suggested (Reaney *et al.* 1978) as a taxonomical tool in the classification of birds. Perhaps this can be attempted for mammals as well, since the present study shows that considerable differences can be noticed in hair structure with the aid of the SEM.

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8. REDISCOVERY OF THE GREAT CRESTED GREBE (*PODICEPS CRISTATUS*) BREEDING IN GUJARAT

The Great Crested Grebe, *Podiceps cristatus*, has a discontinuous distribution in the Palaearctic, Ethiopian, Oriental, Australian (Tasmania, Australia and New Zealand) zones. In the palaearctic zone, the bird is a summer migrant in the northernmost parts of its range, seen throughout the year in the middle part of the range as far south as the Mediterranean basin,

Black Sea and Near East, and a winter migrant in the southern parts of its range (Gooders 1978).

In the Indian region, the bird is known to breed only in Baluchistan (Khushdil Khan Lake) and Ladakh (Tso Kar) and possibly in Nepal; it is a winter visitor to northern India from Sind to Assam and Manipur, and south to Kutch and Orissa (Ripley 1982).

A single record of a nest with three eggs near Kharagoda, Gujarat, was made by Bulkley (1891) in August. Ali & Ripley (1968) states that there is some indirect evidence that odd pairs may breed irregularly in Gujarat and Saurashtra; however, there has been no authentic record of the birds nesting in our area in recent times. The present report records nesting of the bird in Saurashtra during 1984.

The observations were made in the Khijidia marshes (22° 32′N, 70° 10′E), declared now as a Bird Sanctuary, approximately 12 km east of Jamnagar, Gujarat. These are fresh water marshes that have been formed on the landward side of a stone-and-mud dyke that runs in a gently curved manner and is breached by two masonry spillways. The marshes are covered by large patches of dense reeds and grasses with interspersed open water patches. A large number of waterfowl and waders winter here every year and Coot (*Fulica atra*) and Purple Moorhen (*Porphyrio porphyrio*) nest here. During our visit on the 16 September 1984, we saw six adult Great Crested Grebes (*Podiceps cristatus*) in prime breeding plumage, which consisted of the upstanding blackish ear tufts and the chestnut coloured frills shading off into black on the sides of the head. These six birds were seen as three discrete pairs, each keeping to a separate patch of open water.

Prof. R. M. Naik advised us to revisit the place to pay close attention to the grebes and to look for evidences of its possible nesting. So we revisited the marshes on 30 September. This time we were equipped with a Carl Zeiss 16X telescope. First, we saw a pair of grebes with three chicks. The chicks were a little larger than the Little Grebes (*Podiceps ruficollis*) which were swimming conveniently nearby for a size comparison. The chicks had black and white stripes on the head and neck, and their back appeared dark — almost dull black. Swimming independently one chick even tried to climb on a parent's back. One parent fished out what appeared to be a small fish and offered it to the closest chick, but the young one was unable to swallow it and while manipulating it, let it drop into the water only to be picked up by the other parent who offered it again. All this time, a Little Tern (*Sterna albifrons*) hovered above hoping to get the fish.

Finally, the fish was dropped by the chick once again and it disappeared under water. Little later, one chick clambered onto the back of one of the parents and sat there while the other two chicks swam alongside.

As we walked a little ahead, we saw another family group of an adult with two chicks fairly closeby. On spying us, the group glided away, one chick abreast of the parent, the other trailing behind.

Further along, a third pair of adult grebes with three chicks were seen feeding near a family of Coots consisting of the adults and three chicks. The adult grebes seemed to obtain their food both by diving for it and by swimming forward, the body on the water while the head raked the water with the bill inside.

Ahead, we saw yet another pair of adults with three chicks and a single adult grebe floated about nearby.

On 4 October, Shivrajkumar Khachar, R.

M. Naik and Lavkumar Khacher accompanied us to the marshes and confirmed our identification of the grebes and their chicks. During this visit we once again saw the family groups of Great Crested Grebe, in the same area of the marshes where we had seen them earlier.

The Great Crested Grebe is known to live in colonies and small groups during the nesting season. In Europe, several nests of the bird may be found in the same piece of water and in Ladakh and Tibet, it breeds in colonies, many birds placing their nests within a few feet of one another (Baker 1929). The four family groups that we saw at Khijidia were confined to a relatively deeper side of the marsh, and since the family groups maintained a discreet distance we feel that the birds may have nested in a loose colony. Apart from the family groups, we also saw five individual adult birds in breeding plumage in the marsh, so that it seems possible that more than four pairs might have made an attempt at nesting.

Mr. Jumma B. Morya, a Forest Guard, reported some juvenile Great Crested Grebes in the Sanctuary in December 1983 and Mr. Lavkumar Khacher on checking this report, saw three pairs of adults with fully fledged juveniles; it was presumed that the juveniles may have come to Khijidia with their parents as migrants. From our observations of 1984 presented here, it seems possible the grebes may have bred there in 1983 as well.

On three separate occasions in May, June and July 1984, three, thirteen and seven birds respectively, in their breeding plumage were seen at Nyari dam reservoir on the outskirts of Rajkot city, but unfortunately observations on the birds at the reservoir could not be continued later on (A. K. Banerjee and Gopakumar, G., per. comm.). However, these observations at Nyari, combined with the nesting at Khijidia reported here, indicate that several Great Crested Grebes had stayed over in the Saurashtra region of Gujarat during the summer and monsoon of 1984. We look forward to an intensive search for these birds in the marshy areas of Saurashtra during the next nesting season.

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